



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,713	07/19/2004	Volker Hennige	254659US0XPCT	4451

22850 7590 11/14/2006

C. IRVIN MCCLELLAND  
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

COLE, ELIZABETH M

ART UNIT PAPER NUMBER

1771

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/501,713

Applicant(s)

HENNIGE ET AL.

Examiner

Elizabeth M. Cole

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/11/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of copending Application No. 10/487,145. Although the conflicting claims are not identical, they are not patentably distinct from each other because discloses a membrane for separation comprising a fibrous substrate and a permeable ceramic coating.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

3. Claims 1-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-36 of copending Application No. 10/504,144. Although the conflicting claims are not identical,

they are not patentably distinct from each other because each discloses a membrane comprising a fibrous substrate and a permeable ceramic coating.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claims 1-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of copending Application No. 10/524,143. Although the conflicting claims are not identical, they are not patentably distinct from each other because each claims a membrane comprising a fibrous substrate and a permeable ceramic coating.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

5. Claims 1-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of copending Application No. 10/524,669. Although the conflicting claims are not identical, they are not patentably distinct from each other because each claims a membrane comprising a fibrous substrate and a permeable ceramic coating.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Claims 1-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-24 of copending Application No. 10/519,097. Although the conflicting claims are not identical,

they are not patentably distinct from each other because each claims a permeable membrane comprising a fibrous substrate and a permeable ceramic coating.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Claims 1-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-23 of copending Application No. 19/572,274. Although the conflicting claims are not identical, they are not patentably distinct from each other because each claims a permeable membrane comprising a fibrous substrate and a permeable ceramic coating.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

8. Claims 1-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-29 of copending Application No. 10/575,268. Although the conflicting claims are not identical, they are not patentably distinct from each other because each discloses a membrane comprising a fibrous substrate and a permeable ceramic coating.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. Claims 1-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-24 of copending Application No. 10/575,759. Although the conflicting claims are not identical,

they are not patentably distinct from each other because each claims a membrane comprising a fibrous substrate and a permeable ceramic coating.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. Claims 1-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 22-42 of copending Application No. 10/575,734. Although the conflicting claims are not identical, they are not patentably distinct from each other because each discloses a membrane comprising a fibrous substrate and a permeable ceramic coating.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penth et al, U.S. Patent No. 6,309,545. Penth discloses a permeable composite material comprising a fibrous substrate which may be formed from natural or synthetic fibers having a coating disposed thereon. See col. 3, lines 61- col. 4, line 10. The total thickness of the composite material may be 5-150 micrometers. See claim 62. The fibrous substrate can comprise pores or openings having a size of 0.02-500 micrometers which correspond to a minimum value or 20 nm which is within the claimed

Art Unit: 1771

range. See col. 3, lines 39-60. The coating can comprise metal oxides including those claimed. See col. 6, lines 21-43. The coating can be applied by stamping, pressing, rolling, blade or a brushing, dipping, spraying or pouring. See col. 5, lines 32-36. The inorganic material can comprise a sol comprising the metalloid oxide sol. See col. 5, lines 48-53. The membrane can be bent to a radius of 1 mm without breaking. See col. 2, lines 55-60. The sols are obtained by hydrolyzing at least one metallic compound, at least one metalloid compound or at least one composition metallic compound. It is advantageous to carry out the hydrolysis of the compounds to hydrolyzed with at least half the mol. ratio water, water vapor or ice in relation to the hydrolysable group of the hydrolysable compound. The hydrolyzed compound can be treated with at least one organic or inorganic acid. Preferably the percentage by mass of the suspended component should be 0.1 to 500 times the hydrolyzed compound used. The suspension consisting of sol and compounds to be suspended preferably has a ratio of sol to compounds to be suspended of 0.1: 100 to 100: 0.1. See col. 5, line 54 0 col. 6, line 65. Penth differs from the claimed invention because it does not disclose the claimed porosity or fiber diameters. However, since Penth teaches employing a porous substrate, and teaches that the porosity of the material can be controlled, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the particular porosity and pore size which produced a membrane having the desired porosity. Since the size of the fibers would be related to the size of the pores, it further would have been obvious to have selected the fiber size through the

Art Unit: 1771

process of routine experimentation which produced a material having the desired porosity.

13. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Penth et al as applied to claims 1-20, 24-31 above, and further in view of Guiver et al, US Patent Application Publication 20020062737. Penth differs from the claimed invention because Penth does not disclose the use of adhesion promoters to bond the coating to the fibrous substrate. Guiver et al teaches employing the claimed adhesion promoters in order to promote adhesion between a polymeric substrate and an inorganic coating. See abstract. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed an adhesion promoter as taught by Guiver in the invention of Penth, motivated by the expectation that this would improve the adhesion of the coating to the substrate.

14. Applicant's arguments filed 8/25/06 have been fully considered but they are not persuasive. Applicant argues that Penth is primarily concerned with forming a woven porous substrate. However, Penth also teaches glued, felted or ceramically bound fibers which correspond to the claimed nonwoven material. See col. 3, lines 55-56.

15. Applicant argues that there is no motivation to adjust the porosity of any of the carrier fiber materials of Penth. However, Penth teaches that the individual pores of the material can have a size of 0.02-500 um and a thickness of be 5-150 micrometers which encompass the values claimed or taught in the specification of the instant application. Further, Penth teaches that the porosity of the material can be controlled by controlling the particle size of the inorganic components, see col. 5, lines 5-8, which is the same



method taught in the instant application. Therefore, Penth teaches controlling the porosity, teaches similar thickness and pores sizes as the claimed invention, and therefore, the person of ordinary skill in the art would have been able to optimize the porosity of the material of Penth.

16. Applicant's comments regarding the double patenting rejection are noted.

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (571) 272-1475. The examiner may be reached between 6:30 AM and 6:00 PM Monday through Wednesday, and 6:30 AM and 2 PM on Thursday.

Mr. Terrel Morris, the examiner's supervisor, may be reached at (571) 272-1478.

Art Unit: 1771

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

The fax number for all official faxes is (571) 273-8300.



Elizabeth M. Cole  
Primary Examiner  
Art Unit 1771

e.m.c